

## REMARKS

Favorable reconsideration of the above-identified application is requested in view of the following remarks.

Claims 1-14 are pending in this application, with Claims 1, 8 and 14 being independent.

Claims 1-8 and 10-14 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,813,178, hereinafter *Fujiwara*.

The present application relates to an image processing apparatus for changing processing methods according to an image attribute, specifically, depending on detection of a halftone dot image.

The Background of Related Art section of the present application states that there are three types of image data: character image data, photographic image data, and halftone dot image data. It is desirable to treat those types of image data differently. For example, when smoothing is applied to character images in halftone dot image data, the resulting image is blurred, so it must be treated differently. It is therefore necessary to discriminate between the three so that those types of image data can be treated differently.

Accordingly, the present application discusses a solution relating to applying optimal processing to each region, thereby making it possible to reproduce a character image in halftone dot image data with high precision (paragraph [0006]). Paragraph [0017] of the present application discusses a process for accomplishing that. First, it is discriminated whether or not each pixel of image data is a halftone dot characteristic indicative of a halftone dot image. It is also discriminated whether the halftone dot is an edge pixel of an edge region. Second, based on the

discrimination result, the number of halftone dot characteristics is counted, and the number of edge pixels is counted. Third, it is discriminated whether or not the target pixel belongs to a character region in the halftone dot image based on the numbers of halftone dot characteristics and edge pixels counted in the second part.

Paragraph [0010] describes that halftone dot regions are characterized by a large number of halftone dot characteristics and a small number of edge pixels. In contrast, a halftone character region is characterized by a large number of edge pixels and a small number of halftone dot characteristics.

Claims 1, 8 and 14 recite subject matter generally relating to halftone dot characteristic counting, and discrimination between a character region and a halftone dot image. Claims 1 and 8 also recite subject matter generally relating to halftone dot characteristic sampling.

*Fujiwara* is quite different than the claimed subject matter in that *Fujiwara* is merely concerned with character recognition. In *Fujiwara*, a character extracting portion 3 extracts a recognition object letter pattern in a rectangular form from a picture memory portion 2. That is, raw image data including a character image is extracted. A direction code designating portion 4 then designates and determines boundary points of the character image. The boundary point is a picture element point that has a polarity that is different than the polarity of the picture element point of at least one picture element point adjacent to the picture element point. That is, basic edge detection is carried out. See column 3, lines 45-55 of *Fujiwara*. For further reference, please refer to Figure 1 in *Fujiwara*, which discloses a block diagram illustrating *Fujiwara's* process and apparatus.

Claims 1, 8 and 14 are allowable at least because they generally define subject matter relating to halftone dot characteristic counting and discrimination between a character region and a halftone dot image based on the count result of the halftone dot characteristic counting. In contrast, *Fujiwara* does not disclose or mention halftone dot characteristics or halftone dot characteristic counting. Nor does *Fujiwara* mention or disclose discrimination based on the counting of halftone dot characteristics. In fact, a technical review of the disclosure in *Fujiwara* reveals that there is no disclosure of using smaller/larger dots further/closer to one another to show image density, *i.e.*, halftone image data. Also, there is no indication in *Fujiwara* that it would be capable of operating on halftone dot images as discussed in the present application.

Turning attention to the portions of *Fujiwara* that are identified in the Official Action as allegedly disclosing subject matter relating to halftone dot characteristics, *i.e.*, column 4, lines 57-65 and Figures 1 and 7, it is apparent that those portions of *Fujiwara* are related to detection of boundary points, not halftone dot characteristics. Column 4, lines 64-65 states that "the picture element point is designated as a boundary point." Again, as noted above, the detection of boundary points in *Fujiwara* does not relate to halftone dot images as discussed in the claims. Also, Figures 7a and 7b show character image data, not halftone dot image data.

Now, specifically looking at the features of Claim 1, Claim 1 defines an image processing apparatus comprising:

- 1) a halftone dot characteristic sampling section that samples a halftone dot characteristic indicating a characteristic of a halftone dot based on image data;

2) a first counter that counts the number of halftone dot characteristics that exist in a first region including a target pixel from among halftone dot characteristics sampled by the halftone dot characteristic sampling section;

3) an edge pixel sampling section that samples a pixel belonging to an edge region based on image data;

4) a second counter that counts the number of edge pixels that exist in a second region including a target pixel from among edge pixels sampled by the edge pixel sampling section; and

5) a discriminator that discriminates whether or not the target pixel belongs to a character region in a halftone dot image based on the count result of the first counter and the count result of the second counter.

*Fujiwara* does not disclose or suggest at least the claimed features relating to a halftone dot characteristic sampling section. Rather, *Fujiwara* merely "edge detects" the character image data and makes no discrimination with regard to halftone image data.

*Fujiwara* also does not disclose a corresponding first counter that counts a number of halftone dot characteristics. Rather, *Fujiwara* discloses detecting boundary points by determining the relationship of eight picture elements (presumably pixels) surrounding a boundary point (column 3, lines 56-59). There is no disclosure of counting halftone dot characteristics. Also, as noted above, it seems that *Fujiwara* would be incapable of detecting a character in halftone dot image data as discussed in the present application.

*Fujiwara* also does not disclose a discriminator that discriminates whether or not a target pixel belongs to a character region in a halftone dot image based on the

count result of the first counter and the result of the second counter. There is no disclosure relating to halftone image data or the corresponding counters.

For at least those reasons too, Claim 1 is allowable.

In view of the comments made above relating to *Fujiwara's* lack of subject matter relating to halftone characteristics, it is requested that, should the rejection of Claim 1 be maintained, it be specifically explained how *Fujiwara* discloses or suggests the subject matter of Claim 1 relating to halftone dot characteristics, and specifically, how *Fujiwara* would operate with regard to halftone dot characteristics as discussed in the claims.

Claims 2-7 and 10-13 are allowable at least by virtue of their dependence from allowable independent claims.

Claim 9 is rejected as being unpatentable over *Fujiwara* in view of U.S. Patent No. 6,504,949 to *Matsukubo*. *Matsukubo* does not remedy the deficiencies of the rejection of Claim 8, from which Claim 9 depends. Therefore, Claim 9 is allowable for at least the same reasons.

For the reasons states above, it is requested that all the rejections be withdrawn and that this application be allowed in a timely manner.

Should any questions arise in connection with this application, or should the Examiner believe that a teleconference with the undersigned would be helpful in resolving any remaining issues pertaining to this application, the undersigned requests that he be contacted at the number indicated below.

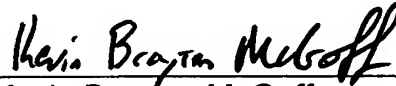
Respectfully submitted,

BUCHANAN INGERSOLL PC

(INCLUDING ATTORNEYS FROM BURNS, DOANE, SWECKER & MATHIS)

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